

Amendment to the Claims:

The listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Original) A method for defining the relationship between frequency and amplitude of a pulse function for acting on a data stream for transmission in a telecommunications system in accordance with a predetermined modulation scheme, the method comprising:

defining desired cost parameters, and

A16 defining the amplitude of the pulse function over a range of frequencies in dependence on the desired cost parameters.

2. (Currently Amended) A method according to claim 1 wherein the amplitude, of the pulse function over a range of frequencies is defined in an iterative process in which the pulse function is altered and, the cost parameters are determined until an acceptable balance of cost parameters is achieved.

3. (Previously Presented) A method according to claim 1 wherein the method further comprises:

weighting the respective cost parameters.

4. (Original) A method according to claim 3 wherein an acceptable balance between the cost parameters is achieved by optimizing the respective costs with the respective weightings.

5. (Currently Amended) A method according to claim 4 wherein the optimization is performed using an optimizer computer programme.

6. (Previously Presented) A method according to claim 1 wherein the cost parameters are selected from one or more of the group including power efficiency, spectral efficiency, bit error rate, AFC, Nyquist, and energy.

7. (Previously Presented) A pulse function generator for converting a data stream in accordance with a pulse function shaped in accordance with the relationship defined by the method of claim 1.

8. (Original) A modulator for providing a signal for transmission in a telecommunication system comprising:

means for shaping a data stream in accordance with the pulse function generator of claim 7.

9. (Original) A modulator according to claim 8 wherein the means for comprises a filter.

10. (Original) A modulator according to claim 8 wherein the means for shaping comprises a look-up table.

11. (Previously Presented) A transceiver for a communication device comprising a modulator in accordance with claim 8 and a demodulator.

12. (Original) A communication device operable in communication system comprising a transceiver according to claim 11.

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13. (Currently Amended) A modulator for providing a signal for transmission in a TDMA telecommunications system in which a channel is a combination of frequency and timeslot in accordance with a predetermined modulation scheme wherein the data stream is shaped in accordance with a pulse generator of claim 7 prior to ~~Modulation~~ modulation with a carrier signal.

14. (Original) A modulator for providing a signal for transmission in a CDMA telecommunications system in accordance with a predetermined modulation scheme, wherein the data stream is shaped in accordance with a pulse generator of claim 7 prior to modulation with a carrier signal.

15. (Previously Presented) A modulator as claimed in claim 13, wherein the modulation scheme is MSK.

16. (Previously Presented) A modulator as claimed in claim 13, wherein the modulation scheme is MSK.

A16 17. (Currently Amended) A dual mode communication device operable in a first mode in a TDMA telecommunications system in which a channel is a combination of frequency and timeslot and a second mode in a CDMA telecommunications system, comprising a modulator for modulating a data stream with a carrier signal in accordance with a predetermined modulation scheme in both the first and second modes of operation and a pulse function generator for shaping a data stream in accordance with ~~respective pulse functions responsive to the mode of operation of the radio telephone~~ shaped in accordance with the predetermined modulation scheme of operation of the dual mode communication device.

18. (Currently Amended) A dual mode communication device operable in a first mode when a first set of cost parameters are desired and in a second mode when a second set of cost parameters are desired, the ~~radiotelephone~~ communication device comprising:

a first pulse function generator for ~~converting~~ shaping a data stream in accordance with a pulse function shaped in ~~dependence on the first set of desired cost parameters~~ accordance with the predetermined modulation scheme;

a second pulse function generator for ~~converting~~ shaping a data stream in accordance with a pulse function shaped in ~~dependence on the second~~

~~set of desired cost parameters~~ accordance with the predetermined modulation scheme; and

means for selecting the pulse function generator in accordance with the mode of operation of the ~~phone~~ dual mode communication device, and

wherein at least one of the pulse functions is shaped in accordance with the relationship defined by the method of claim 1.

A/C 19. (Original) A communication device as claimed in claim 18, which is operable at a first data rate in the first mode and a second data rate in the second mode.

20. (Original) A communication device as claimed in claim 19, wherein the first data rate supports voice applications and the second data rate supports data applications.

21. (Previously Presented) A communication device as claimed in claim 18, operable in a TDMA telecommunications system.

22. (Previously Presented) A communication device as claimed in claim 18, wherein the first pulse function generator generates a pulse of Gaussian shape.

23. (Currently Amended) A dual mode communication device operable in a first mode when a first set of cost parameters are desired and in a second mode when a second set of cost parameters are desired, the radiotelephone communication device comprising:

a modulator for modulating a data stream with a carrier signal in accordance with a predetermined modulation scheme in both the first and second modes of operation;

A16 a first pulse function generator for shaping a data stream in accordance with a pulse function shaped in ~~dependence on the first set of desired cost parameters~~ accordance with the predetermined modulation scheme;

a second pulse function generator for shaping a data stream in accordance with a pulse function shaped in ~~dependence on the second set of desired cost parameters~~ accordance with the predetermined modulation scheme;

and

means for selecting the pulse function generator in accordance with the mode of operation of the ~~phone~~ dual mode communication device.

24. (Currently Amended) A method for selecting a modulation scheme for a communication system, the method comprising:

defining a pulse function for a first modulation scheme of the predetermined modulation scheme in accordance with the method as claimed in claim 1;

defining a pulse function for a second modulation scheme of the predetermined modulation scheme for the same desired cost parameters;
determining the resultant cost parameters for each scheme; and
selecting the modulation scheme which gives good resultant cost parameters given the desired ones.

[25-30. Cancelled (Without disclaimer or prejudice).

A16 ²⁵
~~31~~. (New) A method for defining the relationship between frequency and amplitude of a pulse function for acting on a data stream for transmission in a telecommunications system in accordance with a predetermined modulation scheme, the telecommunications system having desired criteria for respective associated cost parameters, the method comprising:

providing a set of cost functions each representing deviation of a respective one of the associated cost parameters from the desired criteria of the system; and

defining the amplitude of the pulse function over a range of frequencies in dependence on respective weightings of a plurality of cost functions selected from the set of cost functions.

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~~32~~. (New) A pulse function generator arranged to convert a data stream in accordance with a pulse function shaped in accordance with the relationship defined by the method of claim ²⁵~~31~~.

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³³ (New) A modulator for providing a signal for transmission in a telecommunication system comprising:

means arranged for shaping a data stream in accordance with the pulse function generator of claim ²⁶~~32~~.

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³⁴ (New) A transceiver for a communication device comprising a modulator in accordance with claim ²⁷~~33~~ and a demodulator.

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A16 ³⁵ (New) A communication device operable in communication system comprising a transceiver according to claim ²⁸~~34~~.

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³⁶ (New) A modulator for providing a signal for transmission in a TDMA telecommunications system in which a channel is a combination of frequency and timeslot in accordance with a predetermined modulation scheme wherein the data stream is shaped in accordance with a pulse generator of claim ²⁶~~32~~ prior to modulation with a carrier signal.

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³⁷ (New) A modulator for providing a signal for transmission in a CDMA telecommunications system in accordance with a predetermined modulation scheme, wherein the data stream is shaped in accordance with a pulse generator of claim ²⁶~~32~~ prior to modulation with a carrier signal.

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38 (New) A dual mode communication device operable in a first mode having a first set of desired criteria for respective associated cost parameters and in a second mode having a second set of desired criteria for respective associated cost parameters, the communication device comprising:

a first pulse function generator for acting on a data stream in accordance with a first pulse function for transmission in a telecommunications system in accordance with a first modulation scheme;

A16 a second pulse function generator for acting on a data stream in accordance with a second pulse function for transmission in a telecommunications system in accordance with a second modulation scheme; and

means for selecting the pulse function generator in accordance with the mode of operation of the communication device; and wherein

at least one of the pulse functions is shaped in accordance with the relationship defined by the method of claim ²⁵31.

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39. (New) A dual mode communication device operable in a first mode having a first set of desired criteria for respective associated cost parameters and in a second mode having a second set of desired criteria for respective associated cost parameters, the communication device comprising:

a modulator for modulating a data stream with a carrier signal in accordance with a predetermined modulation scheme in both the first and second modes of operation;

a first pulse function generator for shaping a data stream in accordance with a pulse function shaped in accordance with the predetermined modulation scheme;

a second pulse function generator for shaping a data stream in accordance with a pulse function shaped in accordance with the predetermined modulation scheme; and

means for selecting the pulse function generator in accordance with the mode of operation of the communication device; and wherein

A16 at least one of the pulse functions is shaped in accordance with the relationship defined by the method of claim ²⁵34.

³⁴40. (New) A method for selecting a modulation scheme for a communication system, the method comprising:

defining a pulse function for a first modulation scheme in accordance with the method as claimed in claim ²⁵34;

defining a pulse function for a second modulation scheme for a same set of cost functions;

determining the resultant cost parameters for each scheme; and

selecting the modulation scheme which provides resultant cost parameters given the desired cost parameters.